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DOC. NO. AVRADCOM 83E-10 REV. 0
DATE December 1983

MIL-STD-1553

INTERFACE CONTROL DOCUMENT

FOR

RT-XXXX/ARC-164

UHF-AM RADIO

DECEMBER 1983

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This document establishes the requirements for the transfer of all data between the AN/ARC-164 and the onboard aircraft systems. The primary mode of information transfer will be via a MIL-STD-1553B data bus.

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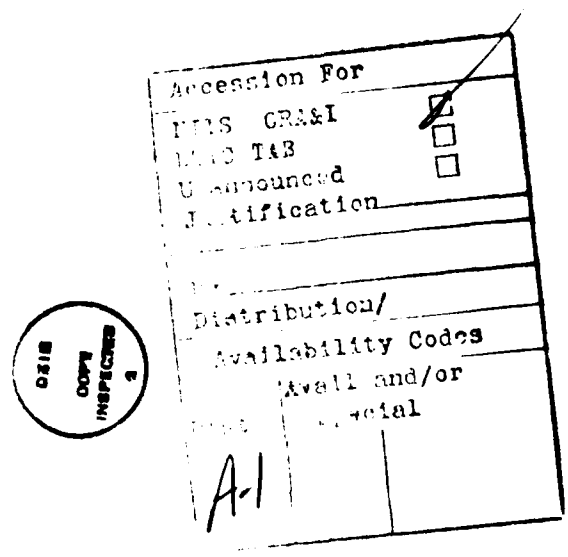
FOREWORD

This draft Interface Control Document for RT-XXXX/ARC-164 was prepared in accordance with the March 1983 version of the Addendum to the MIL-STD-1553 Multiplex Applications Handbook, Chapter 11.

While this document specifically defines the MIL-STD-1553 interface for the RT-XXXX/ARC-164 UHF Radio, the interface defined herein should be used as the basis for the development of future UHF radio interfaces.

All references to the data bus in this document shall specifically mean MIL-STD-1553B and all notices as identified in paragraph 2, "Applicable Documents".

Hereafter the RT-XXXX/ARC-164 will be referred to as the ARC-164.



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INTERFACE CONTROL DOCUMENT

FOR

ARC-164

1. INTRODUCTION

1.1 Purpose

This document establishes the requirements for the transfer of all data over a MIL-STD-1553 data bus between the ARC-164 and the onboard aircraft systems. All references to the data bus in this document shall specifically mean the MIL-STD-1553B data bus and all notices as identified in paragraph 2, "Applicable Documents".

1.2 Responsibility

Custodianship of this document is the responsibility of the U. S. Army Avionics Research and Development Command, DAVAA-I-SF.

1.3 Scope

This document provides a detailed description of the interface characteristics and data word coding and message structure of all data transfer between the ARC-164 and the onboard aircraft systems.

1.4 Functional Summary

1.4.1 ARC-164 Functional Summary. The ARC-164 is a remote receiver-transmitter that provides communication capability on any of 7000 channels spaced at 25 kHz increments over a frequency range of 225.000 MHz to 399.975 MHz. The separate guard receiver is provided for monitoring AM voice signals on the UHF emergency guard channel (a single frequency in the range of 238 MHz to 248 MHz).

The receiver-transmitter includes a signal data converter, electrical frequency synthesizer, guard receiver, main receiver, and transmitter. The capabilities provided within the radio's frequency band include:

a. Amplitude modulated (AM voice).

b. Tone transmission (MCW).

c. Secure speech interface.

d. HAVE-QUICK ECCM capability.

1.4.2 Radio Control Functional Summary. The ARC-164 will receive the following control information via the interface:

a. Select manual frequency - utilizes user scratch pad memory

b. Select preset frequency

c. Select guard mode

d. Select wide/narrow IF Bandwidth

e. Enable/Disable squelch

f. Enable self-test-Built-in-Test (BIT)

g. Preset frequency select - currently 20 channels (capability of future growth to 254 channels)

h. Zeroize (resets all frequencies, except guard, to zero frequency)

i. ADF

j. HAVE QUICK (operation of HAVE QUICK is described in the message notes - Paragraphs 4.1 and 4.2)

1.4.3 COMSEC Equipment Control. A description of the control of the COMSEC equipment via the MIL-STD-1553 Bus will be added at a later revision of this Interface Control Document (ICD).

2. APPLICABLE DOCUMENTS

This section lists those publications, instructions, specifications, standards, and other documents applicable to the preparation of this document.

Army

AVRADCOM 83E-11	Addendum to MIL-STD-1553 Multiplex Applications Handbook, Chapter 11	MAR 1983

Air Force

80 MMIRCA-4-ARC-164-0007	Equipment Specification for RT-1145C/ARC-164	1 MAR 1982

Military Standards

MIL-STD-1553B	Aircraft Internal Time Division Command/Response Multiplex Data Bus	21 SEP 1978 Notice 1 12 FEB 1980

Military Specifications

MIL-I-49091(EL)	Installation and Testing of Receiver/Transmitter, Radio, RT-1167/ARC-164(V) in Army Aircraft	7 JUN 1976

Commercial

STR-DD-89106-1	MIL-STD-1553 Protocol Guidelines for Army Battlefield Automated Systems, SEMCOR, Inc.	APR 1982

3. INTERFACE REQUIREMENTS

3.1 Physical Characteristics

This section describes the essential physical characteristics of the ARC-164 interfaces.

3.1.1 MIL-STD-1553 Interface Physical Characteristics.

3.1.1.1 Signal Format. The ARC-164 interface shall meet the requirements and signal formats per MIL-STD-1553.

3.1.1.2 Terminal Characteristics. The ARC-164 interface shall be a remot terminal (RT) per MIL-STD-1553 and shall incorporate a dual redundant bus system per MIL-STD-1553.

3.1.1.3 RT Address Selection. The ARC-164 interface shall provide external address selection by establishing the address through pin programming of an external connector on the terminal. The terminal shall provide seven (7) pins to define the address decoding. Five (5) pins shall define the terminal address. The sixth pin shall be used as parity for the terminal address. Odd parity shall be used. The terminal shall not respond to any messages as long as parity is not valid. The seventh pin shall be a return line and be used to program the address and parity pins to logic zero. An open address or parity shall be a logic one. The address shall be established in the aircraft wiring.

3.1.1.4 Broadcast. The broadcast option shall not be used.

3.1.1.5 Coupling Method. The ARC-164 interface shall use the transformer coupling stub method per MIL-STD-1553.

3.1.1.6 Terminal Connectors. Triax connectors compatible with those used for Army Helicopter Improvement Program (AHIP) shall be used. (Raychem Model D621 or equal).

3.2 Protocol

This section describes the protocol characteristics of the ARC-164 interface.

3.2.1 Information Transfer Formats. The ARC-164 interface shall be capable of responding to the following command/response information transfer formats per MIL-STD-1553:

Bus Controller to Remote Terminal (ARC-164)

Remote Terminal (ARC-164) to Bus Controller

Remote Terminal (ARC-164) to Remote Terminal

Remote Terminal to Remote Terminal (ARC-164)

Mode Command Without Data Word

Mode Command With Data Word (Transmit)

This Interface Control Document contains message formats for RT-to-RT and Mode Command messages. The data word structure and content for BC-to-RT and RT-to-BC shall be identical to those for RT-to-RT. Message identification information for BC-to-RT and RT-to-BC shall be in accordance with the Chapter 11 addendum to the MIL-STD-1553 Multiplex Applications Handbook.

3.2.1.1 Basic Operation. Basic operation of the ARC-164 interface shall occur as follows:

The ARC-164 interface, per MIL-STD-1553, will receive a command word from the bus controller, recognize a valid RT address, and recognize the transmit/receive (T/R) bit. When the T/R bit = 0 the ARC-164 interface shall receive data word(s) with the information as specified in 4.1. After message validation, the ARC-164 interface shall transmit a status word back to the bus controller per MIL-STD-1553. When the T/R bit = 1, the ARC-164 interface shall, after command validation of a non-mode code command, transmit a status word back to the bus controller. If the ARC-164 interface is not busy, the status word shall be followed by data word(s) as specified in 4.2. In the case of a mode code command, the ARC-164 interface shall, after command validation, transmit a status word back to the bus controller (per MIL-STD-1553) and perform the mode code function of 3.2.1.2 (including the transmission of a data word, if required by the specified mode code).

3.2.1.2 Mode Codes. The ARC-164 interface shall recognize subaddress/mode field codes of 00000 or 11111 as implication that the contents of the data count/mode code field are to be decoded as a five-bit mode code. The mode codes that shall be recognized, per MIL-STD-1553, are as follows:

T/R BIT	MODE CODE	FUNCTION
1	00010	Transmit Status Word
1	00011	Initiate Self-Test
1	00100	Transmitter Shutdown
1	00101	Override Transmitter Shutdown
1	00110	Inhibit Terminal Flag Bit
1	00111	Override Inhibit Terminal Flag Bit
1	01000	Reset Remote Terminal

T/R BIT	MODE CODE	FUNCTION
1	10010	Transmit Last Command Word
1	10011	Transmit BIT Word

3.2.1.3 Status Flags. The ARC-164 interface shall respond with the following status flags per MIL-STD-1553:

Busy	Subsystem
Message error	Terminal Flag

All other status flags shall be set to zero (0).

3.2.1.4 Data Transfer Rate. Data transfer rates for the ARC-164 interface shall be application dependent. Data transfer rates for RT-to-BC, BC-to-RT, and RT-to-RT information transfers are not expected to exceed 10 Hz (unless noted) and may be aperiodic. Data transfer rates for mode command information transfers shall be aperiodic.

3.2.1.5 Initialization States. The states which the ARC-164 radio shall assume upon power-up, under default conditions (1553 terminal flag bit set), and under emergency conditions shall be as follows:

Function	Power-Up State Setting	Default Condition Setting	* Emergency
Channel No.	1	1	0
NB/WB	WB	WB	WB
Squelch	Enable	Disable	Enable
ADF	OFF	OFF	OFF
Tone Key	OFF	OFF	OFF
Guard Receiver	ON	ON	ON
Have Quick Tones	Disable	Disable	Disable

* Emergency operation must be manually selected by the radio operator.

3.3 Interface Diagram

The ARC-164 interface shall interface with the bus controller and other avionic subsystems as shown in Figures 3.1 and 3.2.

3.4 System Conventions

Not Applicable.

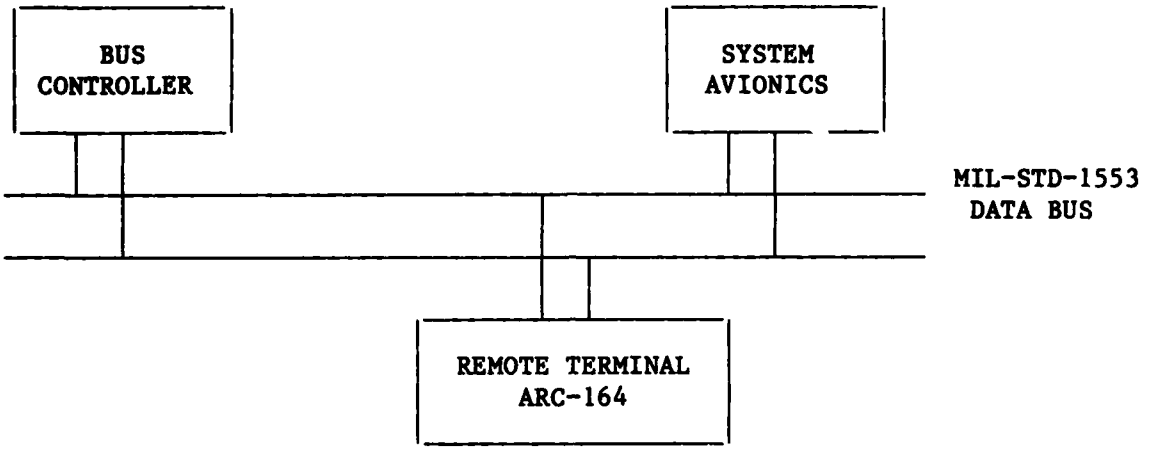


Figure 3.1. Bus Architecture

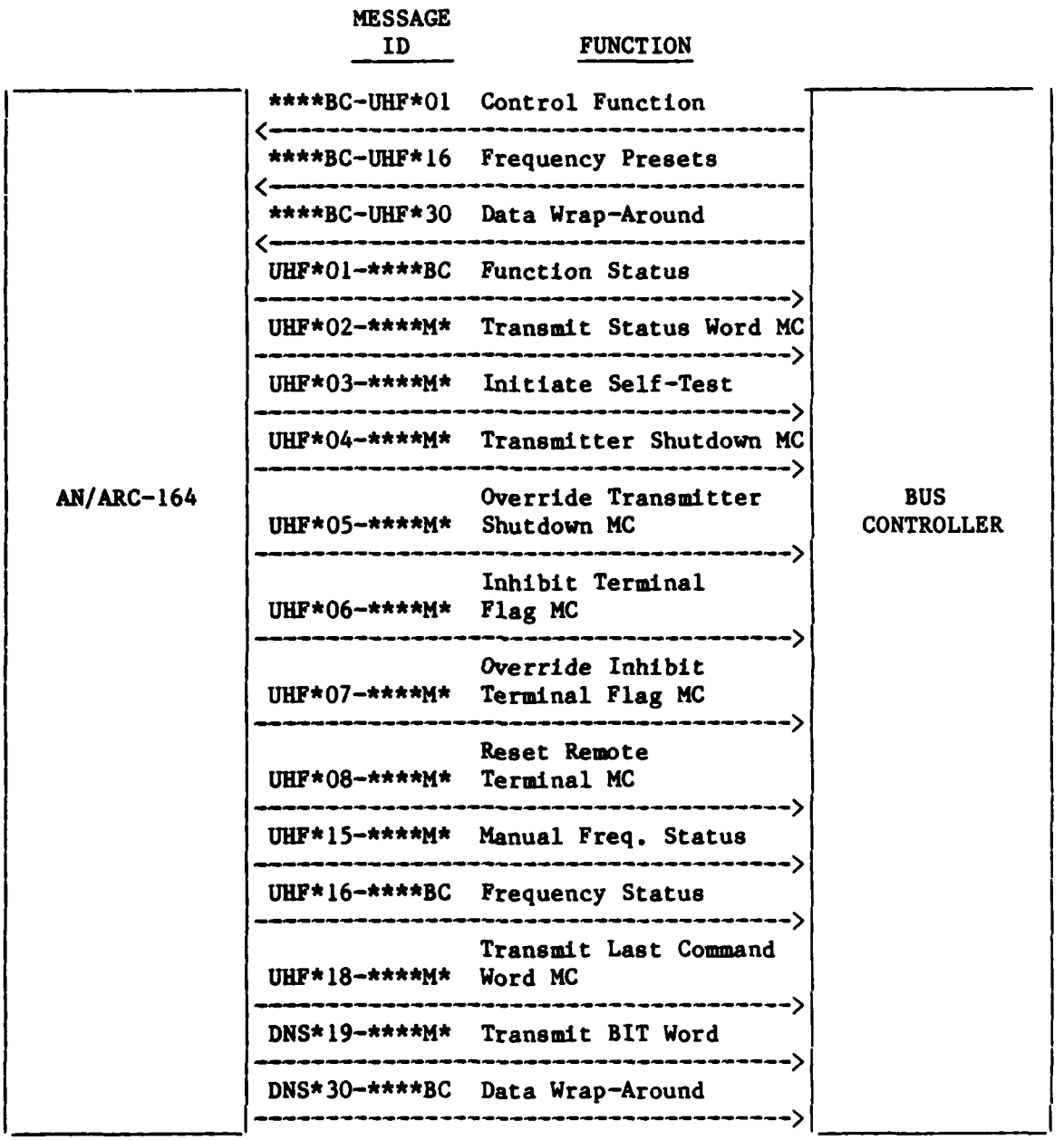


Figure 3.2. MIL-STD-1553 Functional Interface Diagram

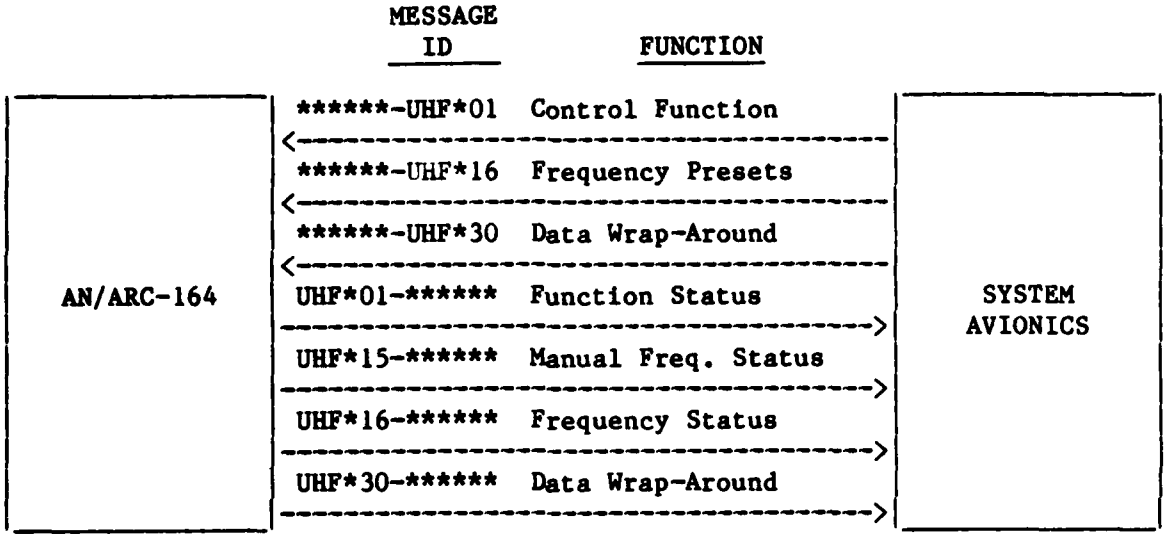


Figure 3.2. MIL-STD-1553 Functional Interface Diagram (continued)

4. MESSAGE DESCRIPTIONS

This Interface Control Document contains message formats for RT-to-RT and Mode Command messages. The data word structure and content for BC-to-RT and RT-to-BC shall be identical to those for RT-to-RT. Message identification information for BC-to-RT and RT-to-BC shall be in accordance with the Chapter 11 Addendum to the MIL-STD-1553 Multiplex Applications Handbook.

4.1 Receive Messages

4.1.1 MIL-STD-1553 Receive Messages. The message formats and word codings for all RT-to-RT command/response information transfers received by the ARC-164 interface are contained in the following messages:

MESSAGE ID	MESSAGE NAME	PAGE
******-UHF*01	Control Function, ARC-164, RT-to-RT Transfer	4.1-1
******-UHF*16	Frequency Presets, ARC-164, RT-to-RT Transfer	4.1-14
******-UHF*30	Data Wrap-Around, ARC-164, RT-to-RT Transfer	4.1-21

4.2 Transmit Messages

4.2.1 MIL-STD-1553 Transmit Messages. The message formats and word codings for RT-to-RT command/response information transfers and mode codes transmitted by the ARC-164 interface are contained in the following messages:

MESSAGE ID	MESSAGE NAME	PAGE
UHF*01-******	Function Status, ARC-164, RT-to-RT Transfer	4.2-1
UHF*02-****M*	Transmit Status Word Mode Code, ARC-164, Mode Command Without Data Word	4.2-11
UHF*03-****M*	Initiate Self-Test Mode Code, ARC-164, Mode Command Without Data Word	4.2-14
UHF*04-****M*	Transmitter Shutdown Mode Code, ARC-164, Mode Command Without Data Word	4.2.17
UHF*05-****M*	Override Transmitter Shutdown Mode Code, ARC-164, Mode Command Without Data Word	4.2-20
UHF*06-****M*	Inhibit Terminal Flag Mode Code, ARC-164, Mode Command Without Data Word	4.2-23
UHF*07-****M*	Override Inhibit Terminal Flag Mode Code, ARC-164 Mode Command Without Data Word	4.2-26

MESSAGE ID	MESSAGE NAME	PAGE
UHF*08-****M*	Reset Remote Terminal Mode Code, ARC-164, Mode Command Without Data Word	4.2-29
UHF*15-******	Manual Freqency Status, ARC-164, RT-to-RT Transfer	4.2-32
UHF*16-******	Frequency Status, ARC-164, RT-to-RT Transfer	4.2-37
UHF*18-****M*	Transmit Last Command Word Mode Code, ARC-164 Mode Command With Data Word	4.2-43
UHF*19-****M*	Transmit BIT Word Mode Code ARC-164, Mode Command With Data Word	4.2-48
UHF*30-****M*	Data Wrap-Around, ARC-164, RT-to-RT Transfer	4.2-52

MESSAGE NAME : Control Function, ARC-164, RT-to-RT Transfer

MESSAGE ID	:	******-UHF*01	TRANSFER TYPE	:	RT-to-RT
SOURCE	:	****	WORD COUNT	:	3
DEST	:	UHF*	XMIT RATE	:	10 HZ

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
Receive Command Word	-CW-	To UHF* Subaddress 01	4.1-2
XMIT Command Word	-CW-	To **** Subaddress **	4.1-2
Transmit Status Word	-SW-	From ****	4.1-3
Channel Number	-01-		4.1-4
UHF* Frequency	-02-		4.1-8
Function Control	-03-		4.1-10
Receive Status Word	-SW-	From UHF*	4.1-13

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

Provides mode, channel number, and frequency preset control for the ARC-164 radio.

TRANSMISSION CRITERIA:

Aperiodic up to a maximum rate of 10 Hz.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

1. Word 01 of this message provides for the selection of channel number and HAVE QUICK mode, zeroizing (resetting all channels except Guard to zero frequency), tuning to either a frequency preset into a channel or a frequency entered manually, presetting frequencies into individual channels, and entering the HAVE QUICK Word-of-Day (WOD). To preset a frequency into a channel, or to enter the HAVE QUICK WOD, this word plus word 02 must be used together.

2. Word 02 of this message provides the frequency to be preset into a channel, the HAVE QUICK WOD, or the HAVE QUICK net numbers.

3. Word 03 of this message provides for control of the ARC-164 radio functions.

WORD NAME : Command Words, Control Function, ARC-164

WORD ID : ******-UHF*01-RTCW
XMIT RATE : *
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	MSW -00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-0	0 indicates receive
Subaddress	-06-0 MSB	
	-07-0	
	-08-0	Subaddress of UHF*= 00001
	-09-0	
	-10-1 LSB	
Data Word Count	-11-0 MSB	
	-12-0	
	-13-0	Number of words to be received = 3
	-14-1	
	-15-1 LSB	
Remote Terminal Address	LSW -00-C MSB	
	-01-C	Address of transmit terminal, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Subaddress	-06-C MSB	
	-07-C	Subaddress of transmit terminal, *
	-08-C	Legal subaddresses 00001-11110
	-09-C	
	-10-C LSB	
Data Word Count	-11-0 MSB	
	-12-0	
	-13-0	Number of words to be transmitted = 3
	-14-1	
	-15-1 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Control Function, ARC-164

WORD ID : ******-UHF*01-TSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of transmit terminal, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-D	1 indicates service requested, Note 1
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-D	1 indicates preceding valid command word was a broadcast command, Note 1
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition, Note 1
Dynamic Bus Cont. Acceptance	-14-D	1 indicates acceptance of control, Note 1
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: Set to zero if not implemented.

WORD NAME : Channel Number, Control Function, ARC-164

WORD ID	: ******-UHF*01-01	MAX VALUE	: N/A
SOURCE(S)	: ****	MIN VALUE	: N/A
DEST(S)	: UHF*	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Coded,NBCD	LSB	: N/A
UNITS	: N/A	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
Channel Number	-00-C MSB	0000 0000 = Guard
		0000 0001 = Channel 1
	-01-C	0000 0010 = Channel 2
		0000 0011 = Channel 3
	-02-C	.
		. Note 1
	-03-C	.
		.
	-04-C	0001 0100 = Channel 20
		.
	-05-C	.
		.
	-06-C	.
		.
	-07-C LSB	1111 1111 = Manual
Memory Management	-08-C MSB	0000 = No Action
		0001 = Tune, Note 2, 4 and 5
	-09-C	0010 = Set, Note 3, 4 and 5
		0011 = Set & Tune, Note 6 and 7
	-10-C	1111 = Zeroize, Note 8
	-11-C LSB	
Have Quick	-12-C MSB	
		0000 = No Action
	-13-C	0001 = T mode, Note 9
		0010 = A mode, Note 10
	-14-C	
	-15-C LSB	

REMARKS: * - Application Dependent

Note 1: Channels 0001 0101 - 1111 1110 reserved for future expansion. Channel 20 is to be used only for Word-of-Day (WOD) and cannot be used to store preset frequencies.

Note 2: Tune radio to channel indicated by channel number.

WORD NAME : Channel Number, Control Function, ARC-164

Note 3: For Set code, word 02 shall contain the frequency to be stored in channel selected. To limit memory operations it is recommended that set commands be aperiodic.

Note 4: To send Time-of-Day (TOD), the message sequence described below must be initiated:

A) Tune the radio to the Transmit TOD frequency (Word 01).

B) Wait 500 msec.

C) Send "TONE-KEY ON" command (Word 03: this command should be sent along with word 01, with "no-action" taken on frequency or channel number).

D) Wait 500 msec.

E) Send "TONE-KEY OFF" command.

If transmitting, TOD causes a change in the operating mode of the radio (i.e., frequency other than that which was previously set) and the radio is to be returned to the original state, then knowledge of that previous state must be stored external to the radio. The state of the radio prior to TOD change may be obtained by requesting status (UHF*01-******) prior to changing the operating conditions of the radio.

Note 5: For HAVE QUICK Word-of-Day (WOD) entry a separate message, using the Set code, is sent to preset each of the channels required, starting with channel number 20 and filling in decending sequential order to channel number 15 if needed. All channels from 15 to 19 that are not used for WOD entry, as determined by the length of the WOD, are available for use as regular preset channels. The Tune code is then used to tune to each WOD channel, starting with channel 20 and continuing in decending sequential order until all of the WOD has been entered. These channels shall not be tuned to after WOD has been entered. If the WOD needs to be re-entered, the entire sequence, beginning with preset channel 20, must be repeated.

The maximum WOD entry rate (maximum rate to which channels can be tuned) is two channels per second. Also, the Frequency Presets message (******-UHF*16) can be used to set all of the WOD channels needed, at one time. The WOD would then be entered by using this message to tune to each of these channels in the manner described in this note.

Note 6: For Set & Tune code, word 02 shall contain the frequency to be stored in channel selected and the radio shall be tuned to the indicated frequency. To limit memory operations, it is recommend that set commands be aperiodic.

WORD NAME : Channel Number, Control Function, ARC-164

Note 7: A separate message, using the Set and Tune code, can be sent to enter each part of the WOD with the entry order and timing restrictions of Note 5 applying to this method of entry as well.

Note 8: The zeroize code unconditionally resets all channels, except Guard, to zero frequency irrespective of channel number (bits 00 to 07). After this is done, a second command to tune to the Guard frequency must be sent to the ARC-164 radio, in order to prevent the radio from being off-line.

Note 9: To receive the TOD a T mode command must be sent to the radio, which shall set all bits except bit 15 of the Channel Number word to zero and all bits in the frequency word (******-UHF*01-02) to zero. The function control word (******-UHF*01-03) may be set in the following ways:

A) Maintain the previous setting, necessitating the storage of this setting in an external scratch pad memory or having the bus controller send a status request to the radio.

B) Set to all zeroes, and then restore the previous setting when the TOD reception is completed, again necessitating the storage of this setting in an external scratch pad memory or having the bus controller send a status request to the radio.

Upon receipt of a message set as above, the radio requires an interval of at least 500 msec, after which the radio will be tuned to the TOD frequency either by making a manual frequency entry or by calling a preset frequency (if the TOD frequency is one of the preset frequencies). The TOD signal will be accepted in any receive mode up to one minute after the receipt of the T Mode Command. If TOD is not received within one minute, the entire sequence must be repeated. The ARC-164 is capable of accepting TOD after power-on with no additional action on the part of the operator or bus controller, provided channel 1 is the TOD frequency.

To generate a pseudo TOD the T mode command is transmitted. Upon receipt of a message set as above, the radio requires a 500 msec interval after which a second T mode command is set and the tone key is enabled. Upon receipt of this message, the radio requires a second 500 msec interval, after which the tone key is disabled, the T mode is released, and the next mode selected. The pseudo TOD has no relationship to the real TOD but may be sent to other radios for emergency HAVE QUICK Active communications, when a real TOD is not available. This mode assumes group knowledge of the proper WOD.

WORD NAME : Channel Number, Control Function, ARC-164

Note 10: When entering HAVE QUICK Active mode (A mode) all bits in this word except bit 14 shall be set to zero and the next word (******-UHF*01-02) shall contain HAVE QUICK net numbers. The hundreds and hundredths digits shall be set to zero and the three remaining characters represent the net numbers. To enter this mode the HAVE QUICK WOD and TOD must have already been successfully entered. If not, a steady 3125 Hz warning tone will be heard over the headset. Upon hearing this tone the operator would have to reinitiate the procedures in Notes 5 and/or 9. If repeating these procedures proves to be ineffective in achieving Active mode, the WOD may contain errors and should be re-entered manually, following the guidelines of Note 5.

WORD NAME : UHF* Frequency, Control Function, ARC-164

WORD ID	: ******-UHF*01-02	MAX VALUE	: N/A
SOURCE(S)	: ****	MIN VALUE	: N/A
DEST(S)	: UHF*	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Coded, NBCD	LSB	: N/A
UNITS	: Megahertz	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
Hundreds Digits	-00-C	1 = 200.0 MHz
		Note 1
	-01-C	1 = 100.0 MHz
Tens Digits	-02-B MSB	1 = 80.0 MHz
	-03-B	1 = 40.0 MHz
	-04-B	1 = 20.0 MHz
	-05-B LSB	1 = 10.0 MHz
Ones Digits	-06-B MSB	1 = 8.0 MHz
	-07-B	1 = 4.0 MHz
	-08-B	1 = 2.0 MHz
	-09-B LSB	1 = 1.0 MHz
Tenths Digits	-10-B MSB	1 = 0.8 MHz
	-11-B	1 = 0.4 MHz
	-12-B	1 = 0.2 MHz
	-13-B LSB	1 = 0.1 MHz
Hundredths Digits	-14-C	1 = 0.05 MHz
		Note 1
	-15-C	1 = 0.025 MHz

REMARKS: * - Application Dependent

The valid range for frequencies and the HAVE QUICK Word-of-Day (WOD) is from 225.000 to 399.975 MHz.

WORD NAME : UHF* Frequency, Control Function, ARC-164

Note 1: If this word is being used to input the HAVE QUICK net numbers, the hundreds and hundredths digits shall be set to zero and the three remaining digits represent the net numbers. The valid range for net numbers is from 00.0 to 99.9.

WORD NAME : Function Control, Control Function, ARC-164

WORD ID	: ******-UHF*01-03	MAX VALUE	: N/A
SOURCE(S)	: ****	MIN VALUE	: N/A
DEST(S)	: UHF*	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Discrete	LSB	: N/A
UNITS	: N/A	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
NB/WB	-00-D	0 = WB 1 = NB, Note 1
Squelch	-01-D	0 = Disable 1 = Enable
ADF	-02-D	0 = ADF Off 1 = ADF On
Tone Key	-03-D	0 = Tone Key Off 1 = Tone Key On, Note 2
Guard Receiver	-04-D	0 = On 1 = Off
Have Quick Tones	-05-D	0 = Disable 1= Enable, Note 3
Non-Xmit TOD Request	-06-D	0 = TOD Off 1 = TOD On, Note 4
Spare	-07-0	Always set to zero
Spare	-08-0	Always set to zero
Spare	-09-0	Always set to zero
Spare	-10-0	Always set to zero
Spare	-11-0	Always set to zero
Spare	-12-0	Always set to zero
Spare	-13-0	Always set to zero
Spare	-14-0	Always set to zero
Spare	-15-0	Always set to zero

REMARKS: * - Application Dependent

Note 1: Set to WB in ADF

Note 2: In HAVE QUICK operation the Tone Key operates as per Notes 4 and 9 to the channel number word (******-UHF*01-01).

WORD NAME : Function Control, Control Function, ARC-164

Note 3: There are several distinctive audio tones associated with HAVE QUICK operation present on the ARC-164's audio output which provide user prompting, feedback and fault warning functions. The following of these tones shall be muted during MIL-STD-1553 operations of the ARC-164 when the HAVE QUICK data loading is being accomplished automatically by the bus controller:

- o WOD partial engagement
- o WOD total engagement
- o TOD transmit tones

The TOD Reception and Active Mode Warning Tones shall not be muted under any conditions.

When HAVE QUICK data is being entered manually by an operator the HAVE QUICK tones shall not be muted. The presence or absence of the tones described above shall not be conveyed in any MIL-STD-1553 word structures. The tones shall be enabled or disabled by bit 05 of the Function Control word. Bit 05 shall be set to a one to enable the tones; a zero shall cause the tones to be muted.

The tones are described as follows:

TOD Reception: A 1667 Hz tone of 250 msec duration followed by the 1020 Hz conventional tone transmit signal indicates that a TOD signal has been received by the ARC-164.

WOD Partial Engagement: A single 3125 Hz tone of 250 msec duration indicates that a single preset channel has been transferred to the HAVE QUICK synthesizer.

WOD Total Engagement: Two 3125 Hz tones of 250 msec duration spaced 250 msec apart indicate that the entire WOD has been transferred to and verified by the HAVE QUICK synthesizer.

Active Mode Warning Tone: When the ARC-164 is placed in Active Mode, a constant 3125 Hz tone indicates that the ARC-164 has not entered Active Mode due to a lack of TOD or WOD.

TOD Transmit: If the ARC-164 has TOD, a TOD transmission will be indicated by a transmit sidetone having the same format as the TOD receive signal.

WORD NAME : Function Control, Control Function, ARC-164

Note 4: The HAVE QUICK Time-of-Day (TOD) is available on the audio output lines in a digital diphase format. To request this TOD bit 06 of the function control word shall be set to a one and then a second function control word shall be sent to reset bit 06 to a zero, not less than 500 msec nor more than one second later. All other bits may maintain the current ARC-164 status (requires use of an external scratch pad memory or a status request) or make any desired changes in current status. The TOD can also be made available externally by grounding a single line. The data shall be available on the next integer-second time frame, after the request is made. The data resolution equals one second. The time resolution equals one msec, within the timing accuracy of the HAVE QUICK system. An absolute error of up to $\pm$ 60 msec may exist if the real TOD is being maintained within HAVE QUICK time accuracy limits.

WORD NAME : Status Word, Receive, Control Function, ARC-164

WORD ID : ******-UHF*01-RSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 2

REMARKS: * - Application Dependent

Note 1: Sequential non-volatile memory operations should not be faster than 100ms apart or busy bit will be set.

Note 2: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Frequency Presets, ARC-164, RT-to-RT Transfer

MESSAGE ID	: ******-UHF*16	TRANSFER TYPE	: RT-to-RT
SOURCE	: ****	WORD COUNT	: 20
DEST	: UHF*	XMIT RATE	: 1 Hz

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
Receive Command Word	-CW-	To UHF* Subaddress 16	4.1-16
XMIT Command Word	-CW-	To **** Subaddress **	4.1-16
Transmit Status Word	-SW-	From ****	4.1-17
Channel 1 Frequency	-01-		4.1-18
Channel 2 Frequency	-02-		4.1-18
Channel 3 Frequency	-03-		4.1-18
Channel 4 Frequency	-04-		4.1-18
Channel 5 Frequency	-05-		4.1-18
Channel 6 Frequency	-06-		4.1-18
Channel 7 Frequency	-07-		4.1-18
Channel 8 Frequency	-08-		4.1-18
Channel 9 Frequency	-09-		4.1-18
Channel 10 Frequency	-10-		4.1-18
Channel 11 Frequency	-11-		4.1-18
Channel 12 Frequency	-12-		4.1-18
Channel 13 Frequency	-13-		4.1-18
Channel 14 Frequency	-14-		4.1-18
Channel 15 Frequency	-15-		4.1-18
Channel 16 Frequency	-16-		4.1-18
Channel 17 Frequency	-17-		4.1-18
Channel 18 Frequency	-18-		4.1-18
Channel 19 Frequency	-19-		4.1-18
Channel 20 Frequency	-20-		4.1-18
Receive Status Word	-SW-	From UHF*	4.1-20

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

This message shall provide frequency preset control information for up to 20 preset channels of the ARC-164. Words 15 to 20 (channels 15 to 20) can also be used to preset the entire HAVE QUICK Word-of-Day (WOD). Channel 20 is reserved exclusively for highest order Word-of-Day (WOD).

TRANSMISSION CRITERIA:

Aperiodic, up to a maximum rate of 1 Hz.

MESSAGE NAME : Frequency Presets, ARC-164, RT-to-RT Transfer

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

1. Words 1 thru 20 shall contain frequencies, within the range from 225.000 to 399.975 MHz to be preset into the 20 channels of the ARC-164 radio.

2. Words 15 to 20 (channels 15 to 20) can contain the HAVE QUICK WOD within the range from 225.000 to 399.975 MHz. Channel 20 is reserved exclusively for highest order Word-of-Day (WOD).

WORD NAME : Command Words, Frequency Presets, ARC-164

WORD ID : ******-UHF*16-RTCW
XMIT RATE : *
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	MSW -00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-0	0 indicates receive
Subaddress	-06-1 MSB	
	-07-0	
	-08-0	Subaddress of UHF*= 10000
	-09-0	
	-10-0 LSB	
Data Word Count	-11-1 MSB	
	-12-0	
	-13-1	Number of words to be received = 20
	-14-0	
	-15-0 LSB	
Remote Terminal Address	LSW -00-C MSB	
	-01-C	Address of transmit terminal, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Subaddress	-06-C MSB	
	-07-C	Subaddress of transmit terminal, *
	-08-C	Legal subaddresses 00001-11110
	-09-C	
	-10-C LSB	
Data Word Count	-11-1 MSB	
	-12-0	
	-13-1	Number of words to be transmitted= 20
	-14-0	
	-15-0 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Frequency Presets, ARC-164

WORD ID : ******-UHF*16-TSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of transmit terminal, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-D	1 indicates service requested, Note 1
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-D	1 indicates preceding valid command word was a broadcast command, Note 1
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition, Note 1
Dynamic Bus Cont. Acceptance	-14-D	1 indicates acceptance of control, Note 1
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: Set to zero if not implemented.

WORD NAME : Channel Frequency, Frequency Presets, ARC-164

WORD ID	: ******-UHF*16-01/20	MAX VALUE	: N/A
SOURCE(S)	: ****	MIN VALUE	: N/A
DEST(S)	: UHF*	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Coded, NBCD	LSB	: N/A
UNITS	: Megahertz	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
Hundreds Digits	-00-C	1 = 200.0 MHz
	-01-C	1 = 100.0 MHz
Tens Digits	-02-B MSB	1 = 80.0 MHz
	-03-B	1 = 40.0 MHz
	-04-B	1 = 20.0 MHz
	-05-B LSB	1 = 10.0 MHz
Ones Digits	-06-B MSB	1 = 8.0 MHz
	-07-B	1 = 4.0 MHz
	-08-B	1 = 2.0 MHz
	-09-B LSB	1 = 1.0 MHz
Tenths Digits	-10-B MSB	1 = 0.8 MHz
	-11-B	1 = 0.4 MHz
	-12-B	1 = 0.2 MHz
	-13-B LSB	1 = 0.1 MHz
Hundredths Digits	-14-C	1 = 0.05 MHz
	-15-C	1 = 0.025 MHz

REMARKS: * - Application Dependent

These 20 words (channels 01 to 20) shall contain frequencies in the range from 225.000 to 399.975 MHz. However, preset channels 15 through 20 (words 15 through 20) shall be available for storing the HAVE QUICK Word-of-Day (WOD), with the same 225.000 to 399.975 MHz range. All six channels may not always be used since the WOD is of variable length. However,

WORD NAME : Channel Frequency, Frequency Presets, ARC-164

REMARKS: (continued)

channel 20 shall always be used for WOD and additional channels shall be used in descending sequential order as needed. Preset channels not used for WOD, from 15 through 19, may be used for regular preset channel assignments. Unused channels shall have the frequency word set to zero.

WORD NAME : Status Word, Receive, Frequency Presets, ARC-164

WORD ID : ******-UHF*16-RSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 2

REMARKS: * - Application Dependent

Note 1: Sequential non-volatile memory operations should not be faster than 100ms apart or busy bit will be set.

Note 2: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Data Wrap-Around, Receive, ARC-164, RT-to-RT Transfer

MESSAGE ID	: ******-UHF*30	TRANSFER TYPE	: RT-to-RT
SOURCE	: ****	WORD COUNT	: Note 1
DEST	: UHF*	XMIT RATE	: *

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
Receive Command Word	-CW-	To UHF* Subaddress 30	4.1-23
XMIT Command Word	-CW-	To **** Subaddress **	4.1-23
Transmit Status Word	-SW-	From ****	4.1-24
Test Pattern Word 1	-01-		4.1-25
.	-02-		4.1-25
.	-03-		4.1-25
.	-04-		4.1-25
.	-05-		4.1-25
.	-06-		4.1-25
.	-07-		4.1-25
.	-08-		4.1-25
.	-09-		4.1-25
.	-10-		4.1-25
.	-11-		4.1-25
.	-12-		4.1-25
.	-13-		4.1-25
.	-14-		4.1-25
.	-15-		4.1-25
.	-16-		4.1-25
.	-17-		4.1-25
.	-18-		4.1-25
.	-19-		4.1-25
.	-20-		4.1-25
.	-21-		4.1-25
.	-22-		4.1-25
.	-23-		4.1-25
.	-24-		4.1-25
.	-25-		4.1-25
.	-26-		4.1-25
.	-27-		4.1-25
.	-28-		4.1-25
.	-29-		4.1-25
.	-30-		4.1-25
.	-31-		4.1-25
Test Pattern Word 32	-32-		4.1-25
Receive Status Word	-SW-	From UHF*	4.1-26

REMARKS: * - Application Dependent

Note 1: Data word count shall be variable from 1 to 32 words.

MESSAGE NAME : Data Wrap-Around, Receive, ARC-164, RT-to-RT Transfer

MESSAGE DESCRIPTION:

This message is used to test the reception and transmission of messages going over the MIL-STD-1553 data bus to and from the ARC-164 radio.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

The data received via this message shall be received and stored for subsequent transmission when message UHF*30-****** is requested. If any message other than the request for message UHF*30-****** should be received prior to transmission of the data received in this message, then the data will be lost. The test pattern in data words 01 to 32 is application dependent.

WORD NAME : Command Words, Data Wrap-Around, ARC-164

WORD ID : ******-UHF*30-RTCW
XMIT RATE : *
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	MSW -00-C MSB -01-C -02-C -03-C -04-C LSB	Address of UHF*, * Legal addresses 00000-11110
T/R	-05-0	0 indicates receive
Subaddress	-06-1 MSB -07-1 -08-1 -09-1 -10-0 LSB	Subaddress of UHF*= 11110
Data Word Count	-11-C MSB -12-C -13-C -14-C -15-C LSB	Number of words to be received = 01 - 32 words, Note 1
Remote Terminal Address	LSW -00-C MSB -01-C -02-C -03-C -04-C LSB	Address of transmit terminal, * Legal addresses 00000-11110
T/R	-05-1	1 indicates transmit
Subaddress	-06-C MSB -07-C -08-C -09-C -10-C LSB	Subaddress of transmit terminal, * Legal subaddresses 00001-11110
Data Word Count	-11-C MSB -12-C -13-C -14-C -15-C LSB	Number of words to be transmitted = 01 - 32 words, Note 1

REMARKS: * - Application Dependent

Note 1: Data word count fields shall be identical.

WORD NAME : Status Word, Transmit, Data Wrap Around, ARC-164

WORD ID : ******-UHF*30-TSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of transmit terminal, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-D	1 indicates service requested, Note 1
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-D	1 indicates preceding valid command word was a broadcast command, Note 1
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition, Note 1
Dynamic Bus Cont. Acceptance	-14-D	1 indicates acceptance of control, Note 1
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: Set to zero if not implemented.

WORD NAME : Test Pattern Word, Data Wrap-Around, ARC-164

WORD ID	: ******-UHF*30-01/32	MAX VALUE	: N/A
SOURCE(S)	: ****	MIN VALUE	: N/A
DEST(S)	: UHF*	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Discrete	LSB	: N/A
UNITS	: N/A	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
Test Pattern	-00-D	
	-01-D	
	-02-D	
	-03-D	
	-04-D	
	-05-D	
	-06-D	
	-07-D	
	-08-D	Test Pattern Word for bits 00 through 15 for each word shall be application dependant.
	-09-D	
	-10-D	
	-11-D	
	-12-D	
	-13-D	
	-14-D	
Test Pattern	-15-D	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Receive, Data Wrap-Around, ARC-164

WORD ID : ******-UHF*30-RSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 2

REMARKS: * - Application Dependent

Note 1: Sequential non-volatile memory operations shall not be faster than 100ms apart or busy bit will be set.

Note 2: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Function Status, ARC-164, RT-to-RT Transfer

MESSAGE ID	: UHF*01-******	TRANSFER TYPE	: RT-to-RT
SOURCE	: UHF*	WORD COUNT	: 3
DEST	: ****	XMIT RATE	: *

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
Receive Command Word	-CW-	To **** Subaddress **	4.2-2
XMIT Command Word	-CW-	To UHF* Subaddress 01	4.2-2
Transmit Status Word	-SW-	From UHF*	4.2-3
Channel Number	-01-		4.2-4
UHF* Frequency	-02-		4.2-6
Function Control	-03-		4.2-8
Receive Status Word	-SW-	From ****	4.2-10

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

Provides for indication of current status of channel number, frequency and mode of radio.

TRANSMISSION CRITERIA:

Aperiodic, up to a maximum rate of 10 Hz or a minimum of 0.1 sec from the last command.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

1. Word 01 shall indicate the channel number to which the radio is set and the HAVE QUICK mode. The memory management field of word 01 shall always be set to the tune code (00001).

2. Word 02 shall indicate the frequency to which the radio is tuned, or, if the radio is in the HAVE QUICK A mode, the HAVE QUICK net numbers.

3. Word 03 shall indicate the radio function setting.

WORD NAME : Command Words, Function Status, ARC-164

WORD ID : UHF*01-******-RTCW
XMIT RATE : *
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	MSW -00-C MSB	
	-01-C	Address of receive terminal, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-0	0 indicates receive
Subaddress	-06-C MSB	
	-07-C	Subaddress of receive terminal, *
	-08-C	Legal subaddresses 00001-11110
	-09-C	
	-10-C LSB	
Data Word Count	-11-0 MSB	
	-12-0	
	-13-0	Number of words to be received = 3
	-14-1	
	-15-1 LSB	
Remote Terminal Address	LSW -00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Subaddress	-06-0 MSB	
	-07-0	
	-08-0	Subaddress of UHF* = 00001
	-09-0	
	-10-1 LSB	
Data Word Count	-11-0 MSB	
	-12-0	Number of words to be transmitted = 3
	-13-0	
	-14-1	
	-15-1 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Function Status, ARC-164

WORD ID : UHF*01-******-TSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

WORD NAME : Channel Number, Function Status, ARC-164

WORD ID	:	UHF*01-******-01	MAX VALUE	:	N/A
SOURCE(S)	:	UHF*	MIN VALUE	:	N/A
DEST(S)	:	****	RESOLUTION	:	N/A
COMP RATE	:	N/A	ACCURACY	:	N/A
XMIT RATE	:	*	MSB	:	N/A
SIGNAL TYPE	:	Coded, NBCD	LSB	:	N/A
UNITS	:	N/A	FULLSCALE	:	N/A

FIELD NAME	BIT NO.	DESCRIPTION
Channel Number	-00-C MSB	0000 0000 = Guard
		0000 0001 = Channel 1
	-01-C	0000 0010 = Channel 2
		0000 0011 = Channel 3
	-02-C	.
		. Note 1
	-03-C	.
		.
	-04-C	0001 0100 = Channel 20
		.
	-05-C	.
		.
	-06-C	.
		.
	-07-C LSB	1111 1111 = Manual
Memory Management	-08-C MSB	
		0001 = Tune, Note 2
	-09-C	
	-10-C	
	-11-C LSB	
Have Quick	-12-C MSB	0000 = No Action
		0001 = T Mode, Note 3
	-13-C	0010 = A Mode, Note 4
	-14-C	
	-15-C LSB	

REMARKS: * - Application Dependent

Note 1: Channels 0001 0101 - 1111 1110 left open for future expansion.

Note 2: Indicate channel to which radio is tuned. This is the only meaningful setting for this field since this message indicates the current status of the ARC-164 radio, which would always be

WORD NAME : Channel Number, Function Status, ARC-164

Note 2 (continued)

the channel number to which the radio is tuned.

Note 3: When in the T mode all bits except bit 15 of the Channel Number word should be set to zero and all bits in the frequency word (Word 02) should be set to zero. The function word (Word 03) should either be set to all zeros or maintained as it was set previously.

Note 4: When in Have Quick Active Mode (A mode), word 02 indicates the HAVE QUICK net numbers. When in this mode the channel number field (bits 00 to 07) will be set to MANUAL (1111 1111).

WORD NAME : UHF*Frequency, Function Status, ARC-164

WORD ID	: UHF*01-******-02	MAX VALUE	: N/A
SOURCE(S)	: UHF*	MIN VALUE	: N/A
DEST(S)	: ****	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Coded, NBCD	LSB	: N/A
UNITS	: Megahertz	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
Hundreds Digits	-00-C	1 = 200.0 MHz
		Note 1
	-01-C	1 = 100.0 MHz
Tens Digits	-02-B MSB	1 = 80.0 MHz
	-03-B	1 = 40.0 MHz
	-04-B	1 = 20.0 MHz
	-05-B LSB	1 = 10.0 MHz
Ones Digits	-06-B MSB	1 = 8.0 MHz
	-07-B	1 = 4.0 MHz
	-08-B	1 = 2.0 MHz
	-09-B LSB	1 = 1.0 MHz
Tenths Digits	-10-B MSB	1 = 0.8 MHz
	-11-B	1 = 0.4 MHz
	-12-B	1 = 0.2 MHz
	-13-B LSB	1 = 0.1 MHz
Hundredths Digits	-14-C	1 = 0.05 MHz
		Note 1
	-15-C	1 = 0.025 Mhz

REMARKS: * - Application Dependent

This word shall indicate the frequency to which the ARC-164 radio is tuned, and should be in the range from 225.000 to 399.975 MHz.

WORD NAME : UHF*Frequency, Function Status, ARC-164

Note 1: When in the HAVE QUICK A Mode, this word shall indicate the net numbers. The hundreds and hundredths digits should be set to zero and the remaining digits should be HAVE QUICK net numbers, in the range from 00.0 to 99.9.

WORD NAME : Function Control, Function Status, ARC-164

WORD ID	: UHF*01-******-03	MAX VALUE	: N/A
SOURCE(S)	: UHF*	MIN VALUE	: N/A
DEST(S)	: ****	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Discrete	LSB	: N/A
UNITS	: N/A	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
NB/WB	-00-D	0 = WB 1 = NB, Note 1
Squelch	-01-D	0 = Disable 1 = Enable
ADF	-02-D	0 = ADF Off 1 = ADF On
Tone Key	-03-D	0 = Tone Key Off 1 = Tone Key On, Note 2
Guard Receiver	-04-D	0 = On 1 = Off
Spare	-05-0	Always set to zero
Have Quick Tones	-06-D	0 = Disable 1 = Enable
Non-Xmit TOD Request	-07-D	0 = TOD Off 1 = TOD On, Note 3
Spare	-08-D	Always set to zero
Spare	-09-D	Always set to zero
Spare	-10-D	Always set to zero
Spare	-11-0	Always set to zero
Spare	-12-0	Always set to zero
Control Status	-13-D	0 = 1553 Control 1 = Remote Control
Invalid Data	-14-D	0 = Valid Data 1 = Invalid Data, Note 4
Spare	-15-0	Always set to zero

REMARKS: * - Application Dependent

Note 1: Should be set to WB in ADF.

Note 2: This bit will only be set during a status request if the status request occurs within the time interval of the "Tone Key" command word, ******-UHF*01-03, (500 msec).

WORD NAME : Function Control, Function Status, ARC-164

Note 3: This bit will only be set during a status request if the status request occurs within the time interval of the "Non-Transmit TOD Request" command word ******-UHF*01-03, (500 msec minimum to 1 sec maximum).

Note 4: Invalid data (i.e. wrong frequency selected, etc.) means that the radio cannot operate on the command given. This bit will be set if the previous command contained invalid data and will be reset on the next command containing valid data. To determine if this bit is set, the Bus Controller may request Function Status after every command (as transmitted in ******-UHF*01). A minimum of 0.1 sec is required between commands.

WORD NAME : Status Word, Receive, Function Status, ARC-164

WORD ID : UHF*01-******-TSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of receive terminal, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-D	1 indicates service requested, Note 1
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-D	1 indicates preceding valid command word was a broadcast command, Note 1
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition, Note 1
Dynamic Bus Cont. Acceptance	-14-D	1 indicates acceptance of control, Note 1
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: Set to zero if not implemented.

MESSAGE NAME : Transmit Status Word Mode Code, ARC-164, Mode Command Without Data Word

MESSAGE ID	: UHF*02-*****M*	TRANSFER TYPE	: Mode Command
SOURCE	: UHF*	WORD COUNT	: N/A
DEST	: ****	XMIT RATE	: Aperiodic

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 02	4.2-12
Transmit Status Word	-SW-	From UHF*	4.2-13

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

Bus controller request for transmission of the last status word transmitted by the ARC-164.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

This message shall cause the ARC-164 to transmit the status word associated with the last valid command word preceeding this command. This message shall not alter the state of the status word.

WORD NAME : Command Word, Transmit Status Word Mode Code, ARC-164

WORD ID : UHF*02-****M*-MCCW
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111.
	-07-C	
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-0 MSB	Transmit Status Word Mode Code = 00010
	-12-0	
	-13-0	
	-14-1	
	-15-0 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Transmit Status Word Mode Code, ARC-164
WORD ID : UHF*02-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Initiate Self-Test Mode Code, ARC-164, Mode Command Without Data Word

MESSAGE ID	: UHF*03-*****M*	TRANSFER TYPE	: Mode Command
SOURCE	: UHF*	WORD COUNT	: N/A
DEST	: ****	XMIT RATE	: Aperiodic, #

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 03	4.2-15
Transmit Status Word	-SW-	From UHF*	4.2-16

REMARKS: * - Application Dependent

Time required for completion of self-test is 1 ms.

MESSAGE DESCRIPTION:

This message provides for the initiation of the ARC-164 radio self-test.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTION/STRUCTURAL RELATIONSHIP:

This message shall cause the ARC-164 radio to begin its self-test procedures.

WORD NAME : Command Word, Initiate Self-Test Mode Code, ARC-164

WORD ID : UHF*03-****M*-MCCW
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	
	-07-C	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-0 MSB	
	-12-0	
	-13-0	Initiate Self-Test Mode Code = 00011
	-14-1	
	-15-1 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Initiate Self-Test Mode Code, ARC-164
WORD ID : UHF*03-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11111 11111 indicates broadcast
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-0	Always set to zero
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 2

REMARKS: * - Application Dependent

Note 1: Sequential non-volatile memory operations should not be faster than 100ms apart or busy bit will be set.

Note 2: The terminal flag shall apply only to the active terminal interface.

MESSAGE NAME : Transmitter Shutdown Mode Code, ARC-164, Mode Command Without Data Word

MESSAGE ID	:	UHF*04-*****M*	TRANSFER TYPE	:	Mode Command
SOURCE	:	UHF*	WORD COUNT	:	N/A
DEST	:	****	XMIT RATE	:	Aperiodic

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 04	4.2-18
Transmit Status Word	-SW-	From UHF*	4.2-19

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

Provides for shutdown of the transmitter associated with the redundant bus.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

This message shall cause the ARC-164 to disable the transmitter associated with the redundant bus. The ARC-164 shall not comply with a command to shut down a transmitter on the bus from which this command is received. The ARC-164 shall respond with a status word.

WORD NAME : Command Word, Transmitter Shutdown Mode Code, ARC-164

WORD ID : UHF*04-****M*-MCCW
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111.
	-07-C	
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-0 MSB	Transmitter Shutdown Mode Code = 00100
	-12-0	
	-13-1	
	-14-0	
	-15-0 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Transmitter Shutdown Mode Code, ARC-164
WORD ID : UHF*04-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF*,*
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Override Transmitter Shutdown Word Mode Code, ARC-164, Mode Command Without Data Word

MESSAGE ID	: UHF*05-*****M*	TRANSFER TYPE	: Mode Command
SOURCE	: UHF*	WORD COUNT	: N/A
DEST	: ****	XMIT RATE	: Aperiodic

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 05	4.2-21
Transmit Status Word	-SW-	From UHF*	4.2-22

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

Provides for overriding shutdown of the transmitter associated with the redundant bus.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

This message shall cause the ARC-164 to enable a transmitter which was previously disabled through transmission of UHF*04-****M*. The ARC-164 shall not comply with a command to enable a transmitter on the bus from which this command is received. The ARC-164 shall respond with a status word.

WORD NAME : Command Word, Override Transmitter Shutdown Word Mode Code, ARC-164
WORD ID : UHF*05-****M*-MCCW
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111.
	-07-C	
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-0 MSB	Transmitter Shutdown Word Mode Code = 00101
	-12-0	
	-13-1	
	-14-0	
	-15-1 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Override Transmitter Shutdown Word Mode Code, ARC-164
WORD ID : UHF*05-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*,* Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Inhibit Terminal Flag Mode Code, ARC-164, Mode Command Without Data Word

MESSAGE ID	:	UHF*06-*****M*	TRANSFER TYPE	:	Mode Command
SOURCE	:	UHF*	WORD COUNT	:	N/A
DEST	:	****	XMIT RATE	:	Aperiodic

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 06	4.2-24
Transmit Status Word	-SW-	From UHF*	4.2-25

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

This message prevents the terminal flag in the ARC-164 status word from being set.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

This message shall prevent the terminal flag in the ARC-164 status word from being set.

WORD NAME : Command Word, Inhibit Terminal Flag Mode Code, ARC-164

WORD ID : UHF*06-****M*-MCCW
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111.
	-07-C	
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-0 MSB	Inhibit Terminal Flag Mode Code = 00110
	-12-0	
	-13-1	
	-14-1	
	-15-0 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Inhibit Terminal Flag Mode Code, ARC-164
WORD ID : UHF*06-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Override Inhibit Terminal Flag Mode Code, ARC-164, Mode Command Without Data Word

MESSAGE ID	: UHF*07-*****M*	TRANSFER TYPE	: Mode Command
SOURCE	: UHF*	WORD COUNT	: N/A
DEST	: ****	XMIT RATE	: Aperiodic

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 07	4.2-27
Transmit Status Word	-SW-	From UHF*	4.2-28

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

This message allows the previously inhibited terminal flag in the ARC-164 status word to be set.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

This message shall allow the terminal flag in the ARC-164 status word, which had previously been inhibited by message UHF*06-*****M*, to be set.

WORD NAME : Command Word, Override Inhibit Terminal Flag Bit Mode Code, ARC-164
WORD ID : UHF*07-****M*-MCCW
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111.
	-07-C	
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-0 MSB	Override Inhibit Terminal Flag Bit Mode Code = 00111
	-12-0	
	-13-1	
	-14-1	
	-15-1 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Override Inhibit Terminal Flag Bit Mode Code, ARC-164
WORD ID : UHF*07-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Reset Remote Terminal (Power Up State) Mode Code, ARC-164, Mode Command Without Data Word

MESSAGE ID	:	UHF*08-*****M*	TRANSFER TYPE	:	Mode Command
SOURCE	:	UHF*	WORD COUNT	:	N/A
DEST	:	****	XMIT RATE	:	Aperiodic

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 08	4.2-30
Transmit Status Word	-SW-	From UHF*	4.2-31

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

Provides for reset of the ARC-164 MIL-STD-1553 interface electronics to a power up initialized state.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

This message shall cause the ARC-164 to transmit its status word, and then reset its MIL-STD-1553 interface electronics to a power up initialized state. The power up initialization state is detailed in paragraph 3.2.1.5. Reset will take no longer than 5 msec.

WORD NAME : Command Word, Reset Remote Terminal (Power Up State) Mode Code ARC-164
WORD ID : UHF*08-****M*-MCCW
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111
	-07-C	
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-0 MSB	Reset Remote Terminal (Power Up State) Mode Code = 01000
	-12-1	
	-13-0	
	-14-0	
	-15-0 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Reset Remote Terminal (Power Up State) Mode Code, ARC-164
WORD ID : UHF*08-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

MESSAGE NAME : Manual Frequency Status, ARC-164, RT-to-RT Transfer

MESSAGE ID	: UHF*15-******	TRANSFER TYPE	: RT-to-RT
SOURCE	: UHF*	WORD COUNT	: 1
DEST	: ****	XMIT RATE	: *

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
Receive Command Word	-CW-	To **** Subaddress **	4.2-33
XMIT Command Word	-CW-	To UHF* Subaddress 15	4.2-33
Transmit Status Word	-SW-	From UHF*	4.2-34
Manual Frequency	-01-		4.2-35
Receive Status Word	-SW-	From ****	4.2-36

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

This message shall indicate the ARC-164 frequency that the operator is working with.

TRANSMISSION CRITERIA:

Aperiodic, up to a maximum rate of 10 Hz.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

Word 1 shall indicate the ARC-164 frequency that the operator is working with, and should be in the range from 225.000 to 399.975 MHz.

WORD NAME : Command Words, Manual Frequency Status, ARC-164

WORD ID : UHF*15-******-RTCW
XMIT RATE : *
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	MSW -00-C MSB -01-C -02-C -03-C -04-C LSB	Address of receive terminal, * Legal addresses 00000-11110
T/R	-05-0	0 indicates receive
Subaddress	-06-C MSB -07-C -08-C -09-C -10-C LSB	Subaddress of receive terminal, * Legal subaddresses 00001-11110
Data Word Count	-11-0 MSB -12-0 -13-0 -14-0 -15-1 LSB	Number of words to be received = 1
Remote Terminal Address	LSW -00-C MSB -01-C -02-C -03-C -04-C LSB	Address of UHF*, * Legal addresses 00000-11110
T/R	-05-1	1 indicates transmit
Subaddress	-06-0 MSB -07-1 -08-1 -09-1 -10-1 LSB	Subaddress of UHF*= 01111
Data Word Count	-11-0 MSB -12-0 -13-0 -14-0 -15-1 LSB	Number of words to be transmitted = 1

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Manual Frequency Status, ARC-164

WORD ID : UHF*15-******-TSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

WORD NAME : Manual Frequency, Manual Frequency Status, ARC-164

WORD ID	: UHF*15-******-01	MAX VALUE	: N/A
SOURCE(S)	: UHF*	MIN VALUE	: N/A
DEST(S)	: ****	RESOLUTION	: N/A
COMP RATE	: *	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Coded, NBCD	LSB	: N/A
UNITS	: Megahertz	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
Hundreds Digits	-00-0C	1 = 200.0 MHz
	-01-C	1 = 100.0 MHz
Tens Digits	-02-B MSB	1 = 80.0 MHz
	-03-B	1 = 40.0 MHz
	-04-B	1 = 20.0 MHz
	-05-B LSB	1 = 10.0 MHz
Ones Digits	-06-B MSB	1 = 8.0 MHz
	-07-B	1 = 4.0 MHz
	-08-B	1 = 2.0 MHz
	-09-B LSB	1 = 1.0 MHz
Tenths Digits	-10-B MSB	1 = 0.8 MHz
	-11-B	1 = 0.4 MHz
	-12-B	1 = 0.2 MHz
	-13-B LSB	1 = 0.1 MHz
Hundredths Digits	-14-C	1 = 0.05 MHz
	-15-C	1 = 0.025 Mhz

REMARKS: * - Application Dependent

This word indicates the frequency, in the range from 225.000 to 399.975 MHz, to which the radio's manual mode is set.

WORD NAME : Status Word, Receive, Manual Frequency Status, ARC-164

WORD ID : UHF*15-******-RSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of receive terminal, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-D	1 indicates service requested, Note 1
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-D	1 indicates preceding valid command word was a broadcast command, Note 1
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition, Note 1
Dynamic Bus Cont. Acceptance	-14-D	1 indicates acceptance of control, Note 1
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: Set to zero if not implemented.

MESSAGE NAME : Frequency Status, ARC-164, RT-to-RT Transfer

MESSAGE ID	: UHF*16-******	TRANSFER TYPE	: RT-to-RT
SOURCE	: UHF*	WORD COUNT	: 20
DEST	: ****	XMIT RATE	: *

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
Receive Command Word	-CW-	To **** Subaddress **	4.2-39
XMIT Command Word	-CW-	To UHF* Subaddress 16	4.2-39
Transmit Status Word	-SW-	From UHF*	4.2-40
Channel 1 Frequency	-01-		4.2-41
Channel 2 Frequency	-02-		4.2-41
Channel 3 Frequency	-03-		4.2-41
Channel 4 Frequency	-04-		4.2-41
Channel 5 Frequency	-05-		4.2-41
Channel 6 Frequency	-06-		4.2-41
Channel 7 Frequency	-07-		4.2-41
Channel 8 Frequency	-08-		4.2-41
Channel 9 Frequency	-09-		4.2-41
Channel 10 Frequency	-10-		4.2-41
Channel 11 Frequency	-11-		4.2-41
Channel 12 Frequency	-12-		4.2-41
Channel 13 Frequency	-13-		4.2-41
Channel 14 Frequency	-14-		4.2-41
Channel 15 Frequency	-15-		4.2-41
Channel 16 Frequency	-16-		4.2-41
Channel 17 Frequency	-17-		4.2-41
Channel 18 Frequency	-18-		4.2-41
Channel 19 Frequency	-19-		4.2-41
Channel 20 Frequency	-20-		4.2-41
Receive Status Word	-SW-	From ****	4.2-42

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

This message indicates the frequency to which each of the 20 ARC-164 preset channels is set. Words 15 to 20 (channels 15 to 20) can also indicate the HAVE QUICK Word-of-Day (WOD). Channel 20 is exclusively reserved for highest order Word-of-Day (WOD).

TRANSMISSION CRITERIA:

Aperiodic, up to a maximum rate of 10 Hz.

MESSAGE NAME : Frequency Status, ARC-164, RT-to-RT Transfer

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

Words 01 through 20 shall indicate the frequencies to which the 20 ARC-164 preset channels are set, and should be in the range from 225.000 to 399.975 MHz. Words 15 to 20 can also indicate the HAVE QUICK WOD with the same 225.000 to 399.975 MHz range.

WORD NAME : Command Words, Frequency Status, ARC-164

WORD ID : UHF*16-******-RTCW
XMIT RATE : *
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	MSW -00-C MSB	
	-01-C	Address of receive terminal, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-0	0 indicates receive
Subaddress	-06-C MSB	
	-07-C	Subaddress of receive terminal, *
	-08-C	Legal subaddresses 00001-11110
	-09-C	
	-10-C LSB	
Data Word Count	-11-1 MSB	
	-12-0	
	-13-1	Number of words to be received = 20
	-14-0	
	-15-0 LSB	
Remote Terminal Address	LSW -00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Subaddress	-06-1 MSB	
	-07-0	
	-08-0	Subaddress of UHF*= 10000
	-09-0	
	-10-0 LSB	
Data Word Count	-11-1 MSB	
	-12-0	
	-13-1	Number of words to be transmitted = 20
	-14-0	
	-15-0 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Frequency Status, ARC-164

WORD ID : UHF*16-******-TSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

WORD NAME : Channel Frequency, Frequency Status, ARC-164

WORD ID	: UHF*16-******-01/20	MAX VALUE	: N/A
SOURCE(S)	: UHF*	MIN VALUE	: N/A
DEST(S)	: ****	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: *	MSB	: N/A
SIGNAL TYPE	: Coded, NBCD	LSB	: N/A
UNITS	: Megahertz	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
Hundreds Digits	-00-C	1 = 200.0 MHz
	-01-C	1 = 100.0 MHz
Tens Digits	-02-B MSB	1 = 80.0 MHz
	-03-B	1 = 40.0 MHz
	-04-B	1 = 20.0 MHz
	-05-B LSB	1 = 10.0 MHz
Ones Digits	-06-B MSB	1 = 8.0 MHz
	-07-B	1 = 4.0 MHz
	-08-B	1 = 2.0 MHz
	-09-B LSB	1 = 1.0 MHz
Tenths Digits	-10-B MSB	1 = 0.8 MHz
	-11-B	1 = 0.4 MHz
	-12-B	1 = 0.2 MHz
	-13-B LSB	1 = 0.1 MHz
Hundredths Digits	-14-C	1 = 0.05 MHz
	-15-C	1 = 0.025 MHz

REMARKS: * - Application Dependent

These 20 words (channels 01 to 20) indicate the frequencies to which the 20 ARC-164 preset channels are set, and should be in the range from 225.000 to 399.975 MHz. Unused channels shall have the frequency word set to zero. Words 15 to 20 can also indicate the HAVE QUICK WOD, with the same 225.000 to 399.975 MHz range. Channel 20 is exclusively reserved for highest order Word-of-Day (WOD).

WORD NAME : Status Word, Receive, Frequency Status, ARC-164

WORD ID : UHF*16-******-RSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of receive terminal, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-D	1 indicates service requested, Note 1
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-D	1 indicates preceding valid command word was a broadcast command, Note 1
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition, Note 1
Dynamic Bus Cont. Acceptance	-14-D	1 indicates acceptance of control, Note 1
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: Set to zero if not implemented.

MESSAGE NAME : Transmit Last Command Mode Code, ARC-164, Mode Command With Data Word (Transmit)

MESSAGE ID :	UHF*18-****M*	TRANSFER TYPE :	Mode Command
SOURCE :	UHF*	WORD COUNT :	N/A
DEST :	****	XMIT RATE :	Aperiodic

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 18	4.2-44 4.2-45
Transmit Status Word	-SW-	From UHF*	
Last Command Word	-01-		4.2-46

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

Provides for transmission of the last valid command word received by the terminal.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

Data Word 01 shall reflect the last valid command received by the terminal and shall be transmitted exactly as received by the ARC-164 terminal.

WORD NAME : Command Word, Transmit Last Command Word Mode Code, ARC-164

WORD ID : UHF*18-****M*-MCCDT
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of receive terminal, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111
	-07-C	
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-1 MSB	Transmit Last Command Word Mode Code = 10010
	-12-0	
	-13-0	
	-14-1	
	-15-0 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Transmit Last Command Word Mode Code, ARC-164
WORD ID : UHF*18-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal inteface.

WORD NAME : Last Valid Command Word, Transmit Last Command Mode Code, ARC-164

WORD ID	: UHF*18-******-01	MAX VALUE	: N/A
SOURCE(S)	: UHF*	MIN VALUE	: N/A
DEST(S)	: ****	RESOLUTION	: N/A
COMP RATE	: N/A	ACCURACY	: N/A
XMIT RATE	: Aperiodic	MSB	: N/A
SIGNAL TYPE	: Coded, NBCD	LSB	: N/A
UNITS	: N/A	FULLSCALE	: N/A

FIELD NAME	BIT NO.	DESCRIPTION
R/T Address	-00-C MSB	
	-01-C	00000 to 11110 = Address of transmit or receive terminal, *
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-C	0 = Receive 1 = Transmit
Subaddress/mode	-06-C MSB	
	-07-C	00001 to 11110 = Subaddress of transmit or receive terminal, *
	-08-C	00000 or 11111 = Decode contents of mode code field as five-bit mode code.
	-09-C	
	-10-C LSB	
Data Word Count/ Mode Code	-11-C MSB	Number of words to be transmitted or received, Note 1, * Legal range 00000 - 11111 00000 indicates 32 words or MIL-STD-1553B mode code legal values, Note 2
	-12-C	
	-13-C	
	-14-C	
	-15-C LSB	

REMARKS: * - Application Dependent

Note 1: For RT-to-RT messages, the word count must be identical in the command word for both the transmit and receive terminals.

WORD NAME : Last Valid Command Word, Transmit Last Command Mode Code, ARC-164

Note 2:
00010 - Transmit Status Word
00011 - Initiate Self Test
00100 - Transmitter Shutdown
00101 - Override Transmitter Shutdown
00110 - Inhibit Terminal Flag Bit
00111 - Override Inhibit Terminal Flag Bit
01000 - Reset Remote Terminal
10010 - Transmit Last Command Word
10011 - Transmit BIT Word

MESSAGE NAME : Transmit BIT Word Mode Code, ARC-164, Mode Command With Data Word

MESSAGE ID	:	UHF*19-****M*	TRANSFER TYPE	:	Mode Command
SOURCE	:	UHF*	WORD COUNT	:	1
DEST	:	****	XMIT RATE	:	Aperiodic

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
XMIT Command Word	-CW-	To UHF* Mode Code 19	4.2-49 4.2-50
Transmit Status Word	-SW-	From UHF*	
BIT Word	-01-	BIT Word	4.2-51

REMARKS: * - Application Dependent

MESSAGE DESCRIPTION:

Provides for transmission of ARC-164 BIT word.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

This message shall cause the transmission of the ARC-164 BIT word, indicating the results of the self-test initiated by message UHF*03-*****M* (Initiate Self-Test mode code). The results of the self-test shall be in the form of a Go/No-Go indication.

WORD NAME : Command Word, Transmit BIT Word Mode Code, ARC-164

WORD ID : UHF*19-****M*-MCCDT
XMIT RATE : Aperiodic
SIGNAL TYPE : Command Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of receive terminal, * Legal addresses 00000-11110
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
T/R	-05-1	1 indicates transmit
Mode	-06-C MSB	Indicates the contents of the mode code field are to be decoded as a five-bit mode code. Legal values 00000,11111
	-07-C	
	-08-C	
	-09-C	
	-10-C LSB	
Mode Code	-11-1 MSB	Transmit Bit Word Mode Code = 10011
	-12-0	
	-13-0	
	-14-1	
	-15-1 LSB	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Transmit, Transmit BIT Word Mode Code, ARC-164
WORD ID : UHF*19-****M*-TSW
XMIT RATE : Aperiodic
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	Address of UHF*, * Legal addresses 00000-11111
	-01-C	
	-02-C	
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	Always set to 000
	-09-0	
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

WORD NAME : BIT Word, Transmit BIT Word Mode Code, ARC-164

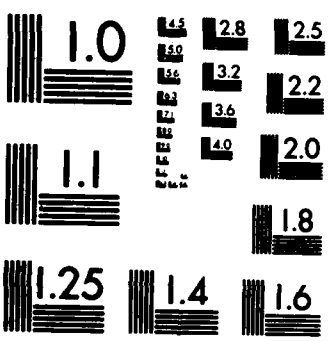
WORD ID	:	UHF*19-******-01	MAX VALUE	:	N/A
SOURCE(S)	:	UHF*	MIN VALUE	:	N/A
DEST(S)	:	****	RESOLUTION	:	N/A
COMP RATE	:	*	ACCURACY	:	N/A
XMIT RATE	:	Aperiodic	MSB	:	N/A
SIGNAL TYPE	:	Discrete	LSB	:	N/A
UNITS	:	N/A	FULLSCALE	:	N/A

FIELD NAME	BIT NO.	DESCRIPTION
Test Result	-00-D	
	-01-0	0000 0000 0000 0000 = Pass
	-02-0	1000 0000 0000 0000 = Fail
	-03-0	
	-04-0	
	-05-0	
	-06-0	
	-07-0	
	-08-0	
	-09-0	
	-10-0	
	-11-0	
	-12-0	
	-13-0	
	-14-0	
	-15-0	

REMARKS: * - Application Dependent

AD-A136 970 INTERFACE CONTROL DOCUMENT FOR RT-XXXX/ARC-164 UHF-AM RADIO(U) SEMCOR INC FARMINGDALE NJ DEC 83 USAAVRADCOM-83E-10 DAAB07-83-D-F058 2/2

UNCLASSIFIED F/G 17/2.1 NL



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

MESSAGE NAME : Data Wrap-Around, Transmit, ARC-164, RT-to-RT Transfer

MESSAGE ID :	UHF*30-******	TRANSFER TYPE :	RT-to-RT
SOURCE :	UHF*	WORD COUNT :	Note 1
DEST :	****	XMIT RATE :	*

WORD NAME	WORD NO.	DESCRIPTION	PAGE NO.
Receive Command Word	-CW-	To **** Subaddress **	4.2-54
XMIT Command Word	-CW-	To UHF*Subaddress 30	4.2-54
Transmit Status Word	-SW-	From UHF*	4.2-55
Test Pattern Word 1	-01-		4.2-56
.	-02-		4.2-56
.	-03-		4.2-56
.	-04-		4.2-56
.	-05-		4.2-56
.	-06-		4.2-56
.	-07-		4.2-56
.	-08-		4.2-56
.	-09-		4.2-56
.	-10-		4.2-56
.	-11-		4.2-56
.	-12-		4.2-56
.	-13-		4.2-56
.	-14-		4.2-56
.	-15-		4.2-56
.	-16-		4.2-56
.	-17-		4.2-56
.	-18-		4.2-56
.	-19-		4.2-56
.	-20-		4.2-56
.	-21-		4.2-56
.	-22-		4.2-56
.	-23-		4.2-56
.	-24-		4.2-56
.	-25-		4.2-56
.	-26-		4.2-56
.	-27-		4.2-56
.	-28-		4.2-56
.	-29-		4.2-56
.	-30-		4.2-56
.	-31-		4.2-56
Test Pattern Word 32	-32-		4.2-56
Receive Status Word	-SW-	From ****	4.2-57

REMARKS: * - Application Dependent

Note 1: Data word count is variable from 1 to 32 words.

MESSAGE NAME : Data Wrap-Around, Transmit, ARC-164, RT-to-RT Transfer

MESSAGE DESCRIPTION:

This message is used to test the reception and transmission of messages going over the MIL-STD-1553 data bus to and from the ARC-164 radio.

TRANSMISSION CRITERIA:

Aperiodic, as commanded by the bus controller.

MESSAGE FUNCTIONAL/STRUCTURAL RELATIONSHIP:

This message shall cause transmission of the Data-Wrap-Around test pattern that was previously received and stored following receipt of message ******-UHF*30. If any message other than the request for message UHF*30-****** should be received prior to the transmission of this message, the data transmitted in this message may be invalid.

WORD NAME : Command Words, Data Wrap-Around, ARC-164

WORD ID : UHF*30-******-RTCW
XMIT RATE : *
SIGNAL TYPE : Command Word

FIELD NAME		BIT NO.	DESCRIPTION
Remote Terminal Address	MSW	-00-C MSB	Address of receive terminal Legal addresses 00000-11110
		-01-C	
		-02-C	
		-03-C	
		-04-C LSB	
T/R		-05-0	0 indicates receive
Subaddress		-06-C MSB	Subaddress of receive terminal,* Legal subaddresses 00001-11110
		-07-C	
		-08-C	
		-09-C	
		-10-C LSB	
Data Word Count		-11-C MSB	Number of words to be received = 01 - 32, Note 1
		-12-C	
		-13-C	
		-14-C	
		-15-C LSB	
Remote Terminal Address	LSW	-00-C MSB	Address of UHF, * Legal addresses 00000-11110
		-01-C	
		-02-C	
		-03-C	
		-04-C LSB	
T/R		-05-1	1 indicates transmit
Subaddress		-06-1 MSB	Subaddress of UHF*= 11110
		-07-1	
		-08-1	
		-09-1	
		-10-0 LSB	
Data Word Count		-11-C MSB	Number of words to be transmitted = 01 - 32, Note 1
		-12-C	
		-13-C	
		-14-C	
		-15-C LSB	

REMARKS: * - Application Dependent

Note 1: Data word count fields must be identical.

WORD NAME : Status Word, Transmit, Data Wrap-Around, ARC-164

WORD ID : UHF*30-******-TSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB	
	-01-C	Address of UHF*, *
	-02-C	Legal addresses 00000-11110
	-03-C	
	-04-C LSB	
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-0	Always set to zero
Reserved	-08-0 MSB	
	-09-0	Always set to 000
	-10-0 LSB	
Broadcast Command Received	-11-0	Always set to zero
Busy	-12-D	1 indicates subsystem is busy
Subsystem Flag	-13-D	1 indicates a subsystem fault condition
Dynamic Bus Cont. Acceptance	-14-0	Always set to zero
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: The terminal flag shall apply only to the active MIL-STD-1553 terminal interface.

WORD NAME : Test Pattern Word, Data Wrap-Around, ARC-164

WORD ID	:	UHF*30-******-01/32	MAX VALUE	:	N/A
SOURCE(S)	:	UHF*	MIN VALUE	:	N/A
DEST(S)	:	****	RESOLUTION	:	N/A
COMP RATE	:	N/A	ACCURACY	:	N/A
XMIT RATE	:	*	MSB	:	N/A
SIGNAL TYPE	:	Discrete	LSB	:	N/A
UNITS	:	N/A	FULLSCALE	:	N/A

FIELD NAME	BIT NO.	DESCRIPTION
Test Pattern	-00-D	
.	-01-D	
.	-02-D	
.	-03-D	
.	-04-D	
.	-05-D	
.	-06-D	Test Pattern Word for bits 00 through 15, for each word shall be application dependant.
.	-07-D	
.	-08-D	
.	-09-D	
.	-10-D	
.	-11-D	
.	-12-D	
.	-13-D	
.	-14-D	
Test Pattern	-15-D	

REMARKS: * - Application Dependent

WORD NAME : Status Word, Receive, Data Wrap Around, ARC-164

WORD ID : UHF*30-******-RSW
XMIT RATE : *
SIGNAL TYPE : Status Word

FIELD NAME	BIT NO.	DESCRIPTION
Remote Terminal Address	-00-C MSB -01-C -02-C -03-C -04-C LSB	Address of receive terminal, * Legal addresses 00000-11110
Message Error	-05-D	1 indicates message error
Instrumentation	-06-0	Always set to zero
Service Request	-07-D	1 indicates service requested, Note 1
Reserved	-08-0 MSB -09-0 -10-0 LSB	Always set to 000
Broadcast Command Received	-11-D	1 indicates preceding valid command word was a broadcast command, Note 1
Busy	-12-D	1 indicates subsystem is busy, Note 1
Subsystem Flag	-13-D	1 indicates a subsystem fault condition, Note 1
Dynamic Bus Cont. Acceptance	-14-D	1 indicates acceptance of control, Note 1
Terminal Flag	-15-D	1 indicates a terminal fault condition, Note 1

REMARKS: * - Application Dependent

Note 1: Set to zero if not implemented.